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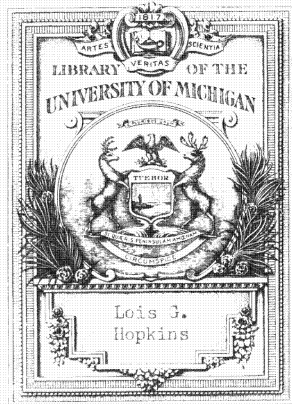

Lois J.
Hopkins

In Memory Of
Katy Gower Hatch

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FALLS OF HANAPEPE ON THE ISLAND OF KAUAI

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SCENERY
IN
HAWAII

DR. SERENO E. BISHOP

HONOLULU, T. H.
1903

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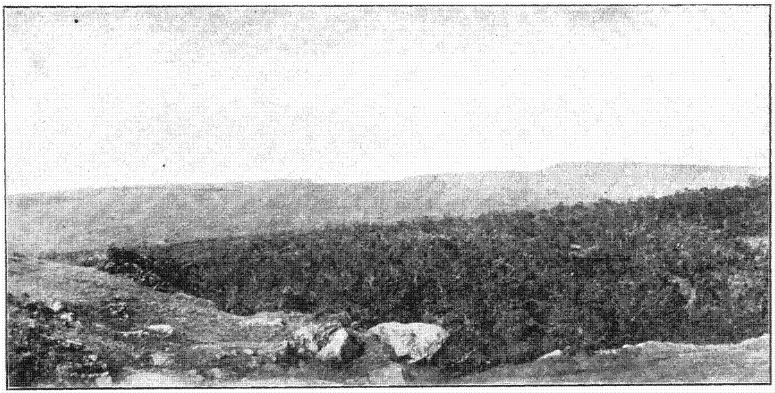

ACROSS THE CRATER OF KILAUEA

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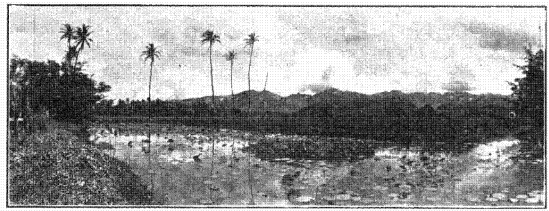

WHERE THE WATER LILIES GROW

THAT the Hawaiian Islands are rich in scenery is not the thing to be said of them. The truth is that they are all scenery, and that of the grandest, most varied kinds, rivalling any other spot on the Earth's surface. There are no plain or monotonous areas in this group. Here one is never apart from the immediate proximity of mountain and ocean in endlessly varied combinations.

A peculiarity of all these islands is the continual change in the form and combination of scenery. These forms seldom seem to repeat themselves. One can travel but a few miles on any island without opening fresh and wonderful combinations of grandeur and beauty. For example, the three or four hours' ride down the railway from Honolulu will give one every half hour an entirely fresh arrangement of striking scenery, each quite unlike all the others.

Nature's Prodigal Hand

A chief element in this variedness of impressive forms lies in the fact of a regular gradation in the ages of the five principal islands, so that the weathering of numberless centuries has developed changes of form which are less or more advanced. These islands lie in a chain stretching 300 miles from northwest to southeast. The oldest islands are at the northwest end, while at the southeastern extremity, the vast bulk of Mauna Loa is still in process of upbuilding.

Hence the northeast islands are fearfully eaten out and worn down by the storms of long ages, while at the other end the mountains retain more or less of the tropical form in which they were originally piled up.

Mountains Worn by Weather

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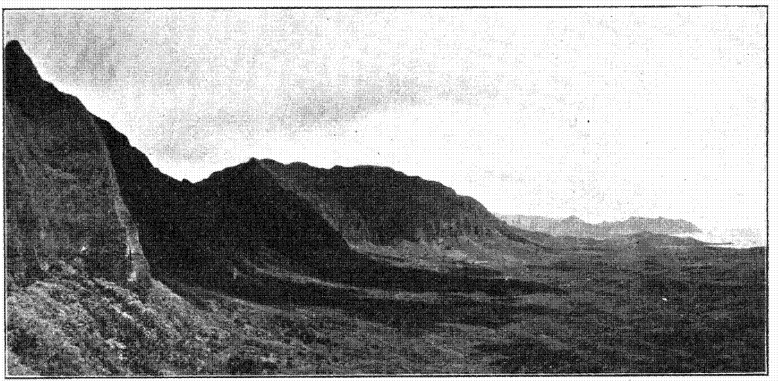

BACKBONE OF OAHU FROM NUUANU PALI

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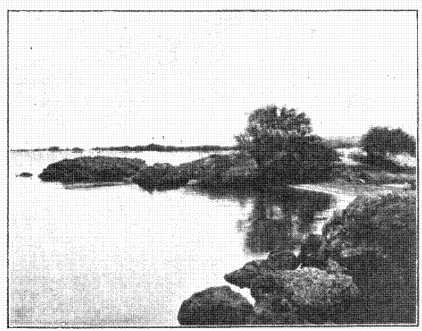
MYSTIC ISLAND KAPIOLANI PARK HONOLULU

INDEED far beyond Kauai at the northwest, stretches a chain of islets which are the gravestones of the sunken predecessors of Hawaii. A few of these still protrude volcanic rock-pinnacles above the surges. Most of them show only low coral reefs, which tell, like marble monuments, of the ancient volcanoes now subsided in the ocean depths. The farthest of this long chain of islets is Midway, 1200 miles away, where is the next station beyond Honolulu of the trans-pacific cable.

Built up By Lava Layers

We learn how every one of these island-mountains was built up by observing the process now in operation on Mauna Loa. For a century past white men have seen at intervals of five or ten years streams of lava pouring out from various points on the upper mountain at altitudes of six to twelve



FORD'S ISLAND IN PEARL HARBOR

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thousand feet. Each fiery torrent may be estimated to have plastered over with fresh rock to an average depth of ten feet, areas ranging from five to thirty square miles. At that rate the whole mountain dome might grow ten feet higher in about one thousand years. At that rate it would have required a million years to build up the present vast bulk of Mauna Loa, whose base is forty miles in diameter and which is 14,000 feet in height. But there can be no doubt that the earlier stages of its growth were far more rapid, by more copious and frequent eruptions.

Building Up a Vast Mountain

WHEN FLOODS FILL THE WAIMEA RICE FIELDS

IT was the writer's privilege in 1886 to witness the last stages of a lava flow on the S. S. W. flank of Mauna Loa, which after four days of action had run ten miles to the sea and filled out into deep water about half a square mile of new land. The onrushing flood of fiery liquid rock, crested with half molten clinkers, had swept down with a continuous crash as of a thousand loaded coal trains plunging to wreck.

The form of mountain thus originally built up is that of a broad, gently sloping dome, which in the case of the two chief mountains of Hawaii is nearly 14,000 feet high, with from 40 to 50 miles breadth of base. Their long slopes seem but slightly diversified by various cinder cones, and by occasional broken down pits or calderas of great breadth and depth, which have been areas of volcanic activity. These two vast mountain masses stand forth out of the ocean in a sublime simplicity of form, crowned with fleckings of perpetual snow.

Form Gently Sloping Domes

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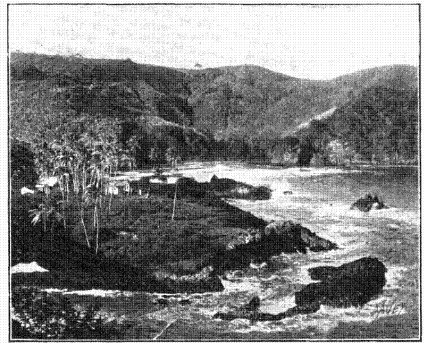

LOOKING INTO ONOMEA FROM THE SEA

AS one voyages to the northward past these young giant mountains successive mountain masses come into view which show clear traces of the same original dome-form; but they are greatly shattered by earth-convulsions and eaten out of shape by the beating storms of long ages. Kohala Mountain at the north end of the large island has been broken by twin faults or crevasses on the northeast shore. The main fault has dropped some ten miles of the seaward mass of the mountain into the ocean, leaving a coast line of giant precipices, reaching two thousand feet high. A parallel fault three miles inland forms a vast gaping gorge which ends at the great Waipio canyon.

Broken Down by Long Ages

Thence crossing a channel of thirty miles to the next island of Maui, another huge dome stands, but fearfully shattered and worn. This is Haleakala, 10,000 feet in height. The summit of this dome seems to have broken open by the settling away of the submarine foundations on its south side. On that side the summit has broken apart into several great mountain pyramids. Between these is the immense crater of Haleakala twenty miles in circuit. Its later eruptions, belonging to a comparatively recent period, belched forth enormous lava

Great Crater of Haleakala

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AMID THE ETERNAL SNOWS OF MAUNA KEA

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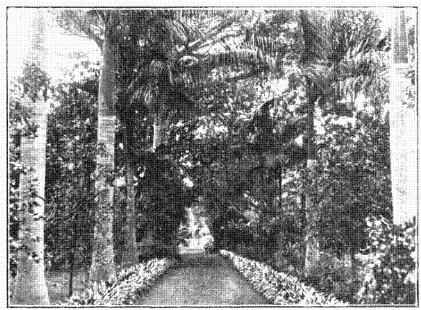
streams through four separate gaps, one being on the northeast. Much of this lava is comparatively fresh, and the floor of the crater, 8,000 feet above the sea, and fifteen square miles in area, is composed of a rugged sea of seemingly new lava.

Grand View from Crater's Brink

On that mountain the erosion of rain storms is comparatively small, although some of the weathered canyons along the shore present formidable obstacles to travel, ranging from 100 to 900 feet in depth; but none of them have worn far back into the upper slopes. The summit ridge of Haleakala crater is quite accessible on the northwest side, and the view from it is considered perhaps the grandest piece of scenery in the group.



AVENUE OF ROYAL PALMS

HALEAKALA dome constitutes the eastern and larger half of Maui Island. United to it by a neck of low, flat land is the West Maui Mountain. West Maui, though much the older mountain, still retains the tropical dome form. It has probably undergone much subsidence, due to the weight of the upbuilt mass upon the the slowly yielding crest of the globe. It is a little short of 6,000 feet in height. Owing to ancient convulsions, rending it open, and to extensive caldera subsidences, as well as to great weathering, West Maui presents perhaps more of wonderful scenic effects than any other mountain in the group.

Calderas and Valleys

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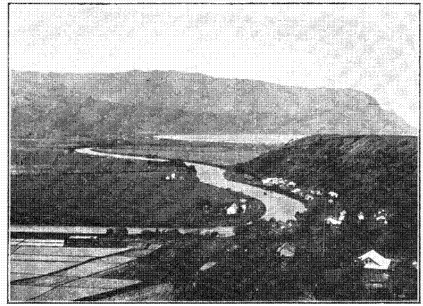

HANALEI VALLEY KAUAI

ONE of the greatest of these and the most accessible, is the noted Iao Valley. There, after a ride of three or four miles inland, one is ushered between lofty pinnacles into a vast amphitheatre surrounded by towering precipices of from 3,000 to 4,000 feet. There are two other analogous amphitheatres adjacent, more difficult of access. All three were probably volcanic calderas.

The storm weathering on West Maui has made conspicuous the internal structure of the mountain piles as being built of a succession of numberless rock-strata, being lava streams roughly overlaid on each other. The southwest side as seen from passing steamers presents an impressive aspect of huge broken pyramids with pinnacled ridges in the interior of their separating gorges. Immediately back of Lahaina is a group of some of the grandest of canyons of enormous depth.

Pinnacled Ridge and Wide Canyon

Hastening by the intervening island of Molokai, which is in an intermediate stage of wreck and weathering, from which the original dome form has largely disappeared, we come to the fourth large island of Oahu, which is the one chiefly seen by transient passengers across the Pacific. The two rugged mountain ranges of this island have almost entirely lost any traces of their ancient dome-form, except to an eye

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taught to perceive them. To the uninstructed sight, all that appears are two skeleton lines of pinnacles with branching side ridges. The wasting storms of probably millions of years have eaten them out and cut them down until their original shape has wholly disappeared.

Wasted by Storms

ALONG THE COAST OF HAWAII

THE result of their remorseless weathering is a long succession of romantic forms of pinnacled ridges and wide canyons, often opening broad valleys with precipitous sides, like Manoa and Nuuanu. On the sides of these valleys, especially the seaward portions, are extremely conspicuous the stratified lava-layers showing how the mountain was anciently piled up. Along the whole length of the longer or Koolau mountain of Oahu there remains a nearly continuous ridge of pinnacled heights like a vast prone vertebral column, interrupted only by three gaps at the head of Nuuanu, Kalihi and Moanalua valleys.

Forms an Island's Backbone

From this backbone extend to the southwest ridges or ribs at right angles with the spine which separates a long succession of side valleys. These rib ridges are commonly sharp and

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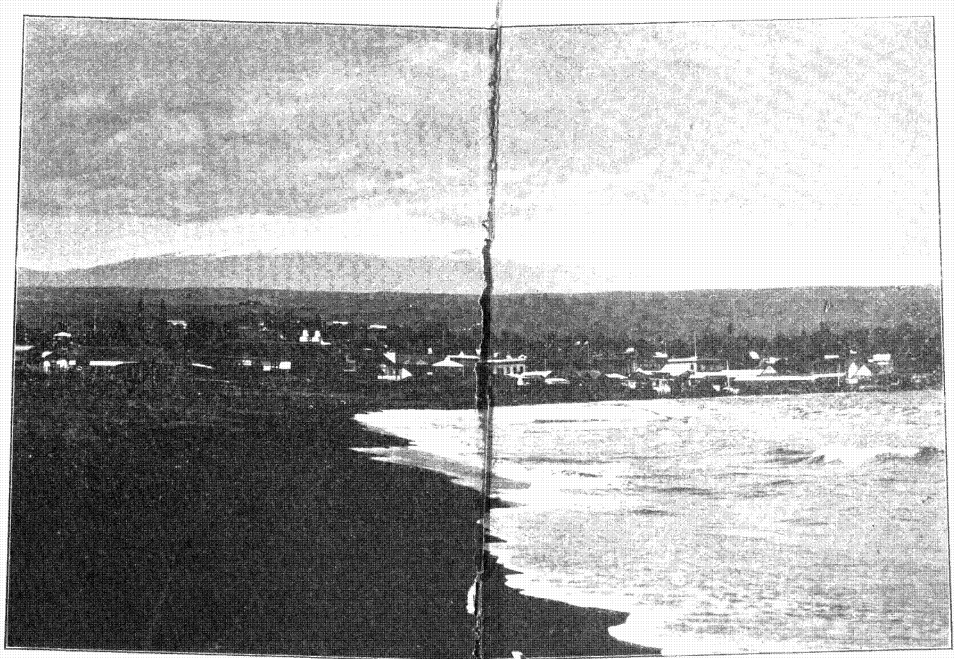

FROM HILO BAY TO THE SNOW-CAPPED SUMMIT OF MAUNA KEA

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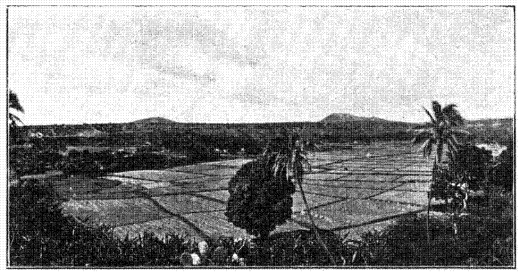
After Millions of Years Weathering

pinnacled, the divided valleys having weathered them down so as to invade each other. Thus the original height of the mountains has been deeply cut away. The only traces of the original surface of the dome are at the low shore ends of the ridges, which look like foot hills. There the erosive action has been small compared with the height, and the ridges widen out into a slope, like "Pacific Heights." Such frequent lower slopes still exhibit fragments of the surface of the original dome. From these the instructed imagination can reconstruct the former mountain as it was in its unfurrowed youth, more than a million years ago. Then its gently rounding summit must have towered thousands of feet above the present wasted mountain skeleton.

ACROSS RICE FIELDS TO KOKO HEADS



Cut from Dome to Ridge

THIS backbone of the Koolau mountain runs about 33 miles from southeast to northwest. It lies directly across the current of the prevailing Trade-winds, whose beating storms have carved the great ridge out of the ancient dome. Consequently on the northeast windward side the weathering has been immensely greater than on the lee-side.

On the windward side of the backbone the heavy and often continuous rains have thoroughly eaten away the heights. The dividing ridges have mainly disappeared and the valleys between have run together. A continuous perpendicular wall of

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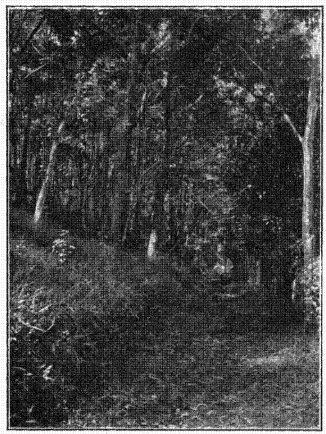
precipice falls boldly down from the great summit line of pinnacles to a wild confusion of lowland hills reaching to the sea, three miles away.

IT is this vast precipice, twenty miles long and over 2,000 feet high, with its picturesque green foot-hills which form the chief elements in the marvelous view presented at the sudden outlook over the celebrated Nuuanu Pali, immediately back of the harbor and city of Honolulu. Probably no other city in the world has in its immediate vicinity so grand and lovely a piece of scenery. It is reached by an hour's drive of six miles to an altitude of 1,200 feet, over one of the most perfect of roads. From between a glorious amphitheatre of mountain walls the visitor is suddenly ushered to the verge of a tremendous precipice overlooking a broad landscape of green plantations and villages at the foot of a lofty twenty-mile precipice.

Seen from Nuuanu Pali



PATH THROUGH TANTALUS EUCALYPTUS FOREST

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LOOKING INTO MAKAWELI GULCH, ISLAND OF KAUAI

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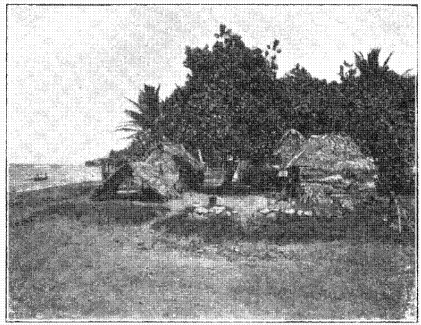
This is bounded beyond by the fretted blue Pacific, and at the north by wild broken ridges along the coast, which kindle a desire to explore.



GRASS HOUSES ON THE SEASHORE

AN excellent road is carved down the precipice and continues along the coast for thirty miles to the northward, where it meets the railway. Seldom is anywhere found such a varied succession of grand and beautiful scenery as along that route. No doubt in the near future an electric railway will make its way along that wonderful coast after surmounting the Nuuanu Pali, and the region will become a favorite suburb for Honolulu residents.

Varied Views of Great Grandeur

Now turning to the still older but shorter Waianae mountain at the west, we find a skeleton ridge of quite similar character. It lies parallel to the other, separated by an interval of thirteen miles. It is only 22 miles long to Koolau's 33. It is of crescent outline with its south limb facing Honolulu, and bounding the western view from the city. The chief summits of the ridge range in height, like those of Koolau, up to 3,000 feet. There is one exception, the square topped Kaala of 4,030 feet.

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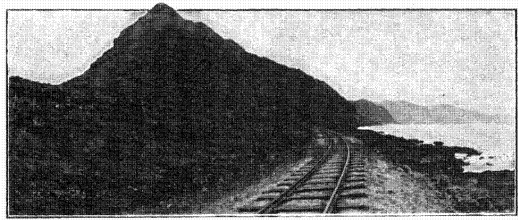
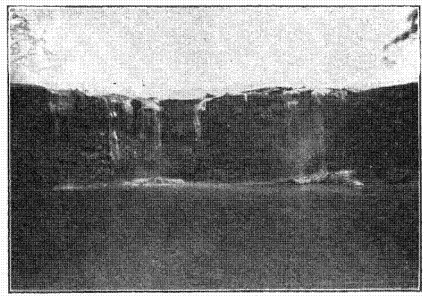


KAENA POINT ON OAHU

BETWEEN the two ridges is a level plateau formed by the lava outpouring of the eastern mountains. At the lowest part of the saddle of this plateau, 800 feet high, it had filled up an ancient valley of erosion in what was the windward side of Waianae before the later Koolau mountain had arisen to shelter it from eastern storms.

Weather Worn Peaks

Since that period the chief weathering has been from the often violent westerly winter storms. That westerly erosion has destroyed the greatest part of the original mountain, eating away far to the east of its center. Only the crescent ridge is left, the west side of which exhibits the same precipitous form as the east side of the Koolau mountain.



LAVA FLOWING INTO THE SEA

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THIS Waianae amphitheatre is quite deficient in the luxuriant verdure of its eastern sister. The extensive lowlands are extremely arid, the trade wind moisture being cut off by the two mountain ranges which intervene.

The railway ride past this section to Waialua, should be taken by every visitor to Honolulu. The first 24 miles are on the south side of the bounding Waianae range. Twenty miles sweep past a continuous belt of luxuriant cane fields averaging two miles wide, and lorded by three huge sugar mills. Here are also seen the broad areas of the newly opened Pearl Harbor about to become the great Naval Station of Imperial America in the Mid-Pacific.

Through Luxuriant Cane Fields

RICE FIELDS AND TROPICAL FOLIAGE, MOANALUA

Then suddenly turning the southwest angle of the mountain, you open a new region of entirely changed aspect, arid mountain precipices and plains with sharp razor-backed promontories reaching the blue sea. Of the twenty miles along this Waianae coast, the last four pass along a narrow ledge between precipice and sea, where the surf beats almost up to the wheels of the train. Rarely can one observe so closely the war of the waves against a wildly rocky shore. Then a long white sand point reaches to the northwest, but the track makes a sharp turn through a rock cutting, and in an instant the direction has changed from northwest to due east, and the north point of the island is seen in the dim distance.

War of Wave and Precipice

You run twelve miles east, half of it along cane fields to the inviting Haleiwa Hotel of Waialua; or you may continue sixteen miles farther to the terminus of the road at Kahuku, whence is a splendid view down the northeast coast to

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HANALEI BAY FROM HAENA BAY

the same green broken ridges which bounded the northerly view from Nuuanu Pali. In this transit one obtains good views of the grand Kaala mountain. Along this north shore of the island are magnificient surf effects if the trade breeze is at all fresh.

Surf Beaten Shores at the North

The train runs for 25 miles near the long, white sand beach, and the mighty squadrons of combing billows charge grandly in over the reefs, to sweep up the beaches in foam, or to shatter on black rocks in high fountains of spray.

WE may now turn to a peculiar feature of Honolulu scenery—the Tuff cones. There are five of these singular hills, the twin cones of Salt Lake Crater four miles west of the city, Punchbowl in its center, Diamond Head, its great land mark, on the east, and seven miles further east the two Koko Heads. These crater-cones are built of uniform layers of a soft rock called tuff, which was showered down in the form of hot mud. Some crevice had admitted the ocean water to the hot molten interior. The water and white hot lava had boiled up together under the enormous pressure of 25 miles of crust.

Amid the Tuff Cones

Finally a fissure burst, and the effervescing compound exploded aloft, expanding into a mushroom shape which fell in a circular pile, such as we now see in Diamond Head, a wonderful rim of one mile in diameter. The strong trade-wind deflected the mud formation so that it piled up a lofty cone to the west. The storms of a hundred centuries have worn it down, though it is still 760 feet high.

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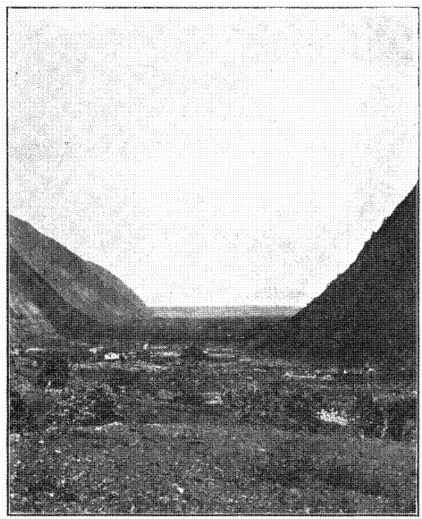
THE rim of Punchbowl is half a mile in diameter, its highest point about 500 feet. Nearly central to the city, a mile from the Custom house, it forms a splendid point of observation, reached by a good carriage road, but itself overlooked by the neighboring Pacific Heights of 800 feet, which are reached by trolley-car. Worthy of notice as you drive in Punchbowl is the deep rugged chasm on the left, which was the vent hole through which the mud formation was ejected.

Punch-bowl in City's Center

The two Koko Heads are evidently the youngest of these Tuff-cones, lying on the right as you steam in from the Coast. One is a lofty cone of 1,200 feet, the other a broader, rounded



WAIPIO VALLEY LOOKING SEAWARD

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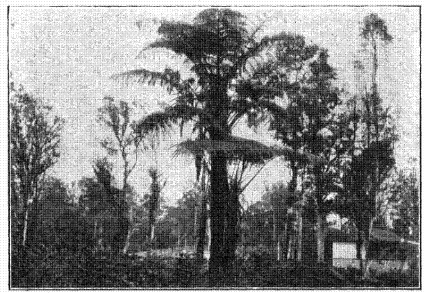
pile, eaten away by the sea to the south. These passed, Diamond Head comes into view, and the cocoanut groves of Waialae. All these cones are brown and naked of verdure, save Punchbowl whose flanks carry gardens and residences perched well aloft.

FOREST OF TREE FERNS



THEY are all in strong contrast to the ancient ridges in the rear, which are a hundred times their age. It would seem that long after the original volcanoes, had become extinct, and the island decrepit with age, a new epoch of convulsion arose; the earth's crust was disturbed, and a crop of these volcanic cones burst forth. They seem to have been coeval with the Glacial Period, and its attendant disturbances of equilibrium, including the Noachian Deluge. The Koko Heads may have coincided in age with Noah and his flood.

May Date from Time of Noah

One hundred miles to the westward of Oahu lies Kauai, the oldest of the five larger islands. It is also in many respects the most beautiful, especially in its greener verdure, and in its larger proportion of rolling hilly land, due to the greater weathering down of its mountains. On this island are three small rivers, navigable by boat for some distance inland. The largest of these rivers is in Hanalei, a broad valley of magnificent tropical beauty.

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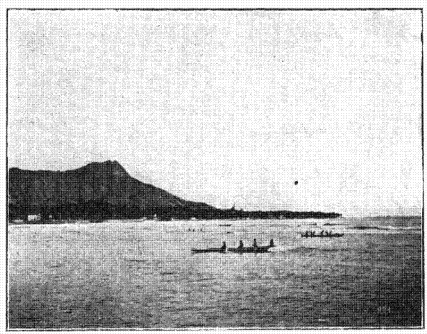
IT remains to speak of Hilo with its town and harbor, which rest amid the grandest outlook in all Hawaii. Nothing can be more superb than the view of the town looking northwest from the harbor. Far in the rear stand the two giant snow-crowned mountains, Mauna Kea and Mauna Loa, with dense forests clothing their flanks far seaward. Along the northern coast for fifteen miles lie the beautiful plantations. To the southwest are the great forests of Puna, behind which smokes the low crater of Kilauea, 31 miles away.

From Shore to Snows

Kilauea volcano constitutes the most remarkable scenic attraction in Hawaii, and perhaps in the world, whenever it is in activity. This is due to its size, to the glory of its fires, and to the fact that the fires may be closely approached with convenience and safety. Often there are open lakes, white hot molten lava, so gently and quietly seething that visitors can insert poles and withdraw cooling fragments of lava adhering to them. Kilauea is noted as essentially a tame volcano, devoid of explosive or dangerous action.

Kilauea Volcano Is Tame



DIAMOND HEAD AND SURFBOATS

The thirty-one miles from Hilo are traversed by an excellent macadamized road. A little over half that distance is made on the steam cars of the Hilo Railway through the

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